North Dakota GIS Users Conference 2006
October 23-25
Comfort Inn and Heritage Center
Bismarck, ND

Monday, October 23

Heritage Center Auditorium

1:00 p.m. – 1:15 p.m.
Welcome and Opening Comments

Presented by: Bob Nutsch, GIS Coordinator, North Dakota Information Technology Department
John Hoeven, Governor of North Dakota

1:15 p.m. – 2:00 p.m.
Keynote Address

Presented by: Jim Geringer, Former Governor of Wyoming

Heritage Center Lecture Room B

2:00 p.m. – 2:30 p.m.
Break

Come meet and visit with Governor Geringer.

2:30 p.m. – 4:00 p.m.
Full GIS Technical Committee Meeting

- **2:30 p.m. – 3:15 p.m.**
  Executive Committee Report

  In this session the Executive GIS Technical Committee will report on their accomplishments during the past year and review current work and goals.

- **3:15 p.m. – 4:00 p.m.**
  Moderated Feedback and Discussion

  During this time the entire Full GIS Technical Committee will discuss statewide data priorities, collaboration opportunities, and plans for future conferences and training opportunities.

Tuesday, October 24

7:45 a.m. – 1:30 p.m.
Registration and check-in outside of Room C

Comfort Inn - Room F
Exhibits

9:00 a.m. – 6:00 p.m.

Please be sure to stop by and chat with the exhibitors. Please thank them for taking time to set up their displays and being a part of the Users Conference.

Comfort Inn – Room C/D
Presentations

8:00 a.m. – 8:45 a.m. Room C/D
Conference Sponsor Section

A great way to thank the vendors for the sponsorship of this conference is by coming to this session to hear of the services and products that they provide!

Presented by: Sponsors of the North Dakota GIS Users Conference 2006

8:45 a.m. – 9:15 a.m. Room C/D
An Introduction to Open Source GIS

Open Source GIS is continuing to enjoy a dramatic increase in usage and development. The purpose of this presentation is to briefly introduce a number of server and desktop Open Source GIS tools. Geared towards those who are to varying degrees familiar with commercial server and desktop GIS, this presentation will casually review some of the more popular Open Source GIS products and how they compare to their commercial counterparts.

Presented by: Bob Nutsch, GIS Coordinator, North Dakota Information Technology Department

9:15 a.m. – 9:45 a.m. Room C/D
FIRMs to DFIRMs: Changes to Floodplain Maps in North Dakota

The Federal Emergency Management Agency (FEMA) set out in 2003 with a vision to update the nation's flood hazard maps. The goal of FEMA was to convert flood insurance rate maps (FIRM) to a digital format, becoming known as digital flood insurance rate maps (DFIRM). The North Dakota State Water Commission has taken the lead in the State of North Dakota and become a cooperating technical partner with FEMA to update the State's flood hazard maps. This presentation will inform the GIS community in North Dakota about the current status of the Map Modernization program. It will also focus on the use of GIS in the digital conversion projects and new engineering study projects. Finally the presentation will inform flood hazard data users where to obtain digital data and demonstrate uses of the DFIRM data.

Presented by: Brian Fischer, CFM, GIS Project Manager, Houston Engineering, Inc.
Julie Prescott, PE, Water Resource Engineer, ND State Water Commission

9:45 a.m. – 10:00 a.m. Room F – Exhibit Area
Break

10:00 a.m. – 10:30 a.m. Room C/D
Gearing Up for 2010: Geographic Programs Leading up to the Census

Preparation for the decennial census starts well in advance of Census Day. An overview of the Boundary and Annexation Survey (BAS), the MAF/TIGER Accuracy Improvement Program, Local Update of Census Addresses (LUCA) and other geographic programs will be covered.

Presented by: Katy Rossiter, Geographic Specialist, US Census Bureau

10:30 a.m. – 11:15 a.m. Room C/D
ESRI User Conference Recap

This presentation will address highlights of the 26th Annual ESRI User Conference in San Diego, CA. It will focus on ESRI's vision of GIS and its role in this rapidly changing world along with GIS software development as the result of the ever expanding roll of the internet, web based services and mobile technology.

Presented by: Mark Robbins, ESRI Account Manager

11:15 p.m. – 11:45 a.m. Room C/D
Web Mapping: Explore the Possibilities

Web mapping. We've all heard the term. In most cases, we think of web mapping as a portal to distribute and share data such as, tax records, aerial photos, and generate mailing labels. However, web mapping has many more possibilities that are often overlooked. Since one of the topics of this year's conference is "industry trends", we will take a look at the newest trends in web mapping technologies. This presentation will discuss basic web mapping components and give examples of how organizations are expanding the service and functionality of web mapping applications to fit needs that go above and beyond traditional uses.

Presented by: Kendis Scharenbroich, GIS Consulting Manager, Pro-West & Associates, Inc.

11:45 a.m. – 1:00 p.m.
Lunch on your own

Comfort Inn – Rooms C, D & E
Presentations

1:00 p.m. – 1:45 p.m. Room C
Multi-Jurisdictional GIS Data Sharing, Maintenance and Application in the Fargo-Moorhead Metropolitan Area

The Cities of Fargo and Moorhead and the Counties of Cass, ND and Clay, MN, work collaboratively to share geospatial data to support the needs of GIS users and applications in the metropolitan area of Fargo – Moorhead. From Multi-Jurisdictional aerial imagery and LiDAR projects to providing GIS data and support for the first 911 dispatch center that covers an area which crosses state lines, GIS staff are kept busy with many challenges.

Presented by: Brad Anderson, GIS Coordinator, City of Fargo

1:00 p.m. – 1:45 p.m. Room D
Montana-Dakota Utilities' GIS: from linen to Linux

After working in a paper environment for over 70 years, Montana-Dakota has discovered the benefits of GIS. Their enterprise system is available to all employees - from the customer service representative to the field technician. The presentation will center on the various ways in which they view and serve their data.

Presented by: Kevin Alishouse, GIS Manager, Montana-Dakota Utilities Co.

1:00 p.m. – 1:45 p.m. Room E
LIDAR 101: Intro to LIDAR

This presentation will provide an introduction and overview to Light Detection and Ranging (LIDAR) technology. We will explore the system components, differences between small footprint discrete return lidar and continuous waveform large footprint systems. We will overview how the system operates, how systems can vary, what LIDAR data looks like, and how we go about processing small footprint LIDAR data. Focus will be on specific technical issues and lessons learned by users processing, analyzing, visualizing and distributing lidar data sets. New tools and techniques being used specifically at the U.S. Geologic Survey National Center for EROS will be discussed in detail. We will discuss not only how LIDAR is being used for bare earth DEM generation, but how we can extract vertical vegetation and structural information from the resultant LIDAR returns.

Presented by: Jason Stoker, Senior Scientist, Science Applications International Corporation (SAIC)
USGS Earth Resources Observation and Science (EROS)

1:45 p.m. – 2:30 p.m. Room C
Various States of GIS: Bridging Borders through Cooperative Coordination

Early in our nation's history there was greater interest in moving from territorial status to statehood, bringing with it the dividing lines we have all come to know so well, the contiguous lower 48. In an effort to minimize the disparity between the differences of our states and rather display the unity that so formed this union of our states, several with in the GIS community currently persist in cross-border cooperation, specifically between North Dakota and Minnesota.

What does it mean to work together between states? What bridges have been built in the past, are currently being built and will any be built in the future? Is it naive to think that contiguous states, identified by a border boundary line, can work together for the benefit of their own constituents as well as those in a different state sharing the same border?

This session will explore what and how cooperative GIS projects and resources have benefited GIS users and citizens in the Red River Valley and beyond. Specifically this session will look at the efforts to bridge borders by the Pine to Prairie GIS User group and the Community GIS Technical Committee serving communities in the southern Red River Valley and beyond.

Presented by: Doug Bartels, GIS Coordinator, Richland County, ND
Wayne Hurley, AICP, Transportation Planning Director, West Central Initiative

1:45 p.m. – 2:30 p.m. Room D
Facility Profiler Tool Used by the NDDoH, Environmental Health Section

The Facility Profiler is a tool used by the Environmental Health Section of the state Health Department to provide a single database access point where information can be found on all of the

regulated facilities tracked by the various programs within the Section. This talk will discuss: 1. Why the Environmental Health Section implemented the facility profiler application, 2. Provide an overview of how it interacts with the individual program database systems, and 3. the GIS tool incorporated into the application that provides added value to the programs within the section.

Presented by: Gary Haberstroh, Environmental Engineer, Environmental Health Section, North Dakota Department of Health

1:45 p.m. – 2:30 p.m. Room E
USDA National Agricultural Imagery Program

The United States Department of Agriculture has acquired aerial photography to administer farm programs since 1936. The National Agricultural Imagery Program (NAIP) consolidates FSA's aerial photography, digital imagery, and digital orthoimagery requirements into a national strategy that acquires the best value products for USDA agencies. The resulting product is flexible enough to create win-win partnerships with Federal agencies, State and local governments, and private entities. NAIP is intended to maximize informational value by minimizing the cycle time from acquisition to final delivery.

Presented by: Dan Janes, GIS Management Analyst, North Dakota FSA State Office

2:30 p.m. – 2:50 p.m. Room F – Exhibit Area
Break

Comfort Inn – Rooms C, D & E
Workshops

2:50 p.m. – 4:15 p.m. Room C
Introduction to Geoprossessing Using Models and Scripts

Suggested skill level of audience: All levels

Geoprocessing is the processing of geographic information, one of the basic functions of a GIS. ArcGIS 9.2 presents a comprehensive set of geoprocessing tools that work with all the supported data formats, including geodatabase features. It also offers a completely new framework for working with these tools that enables you to launch them individually, combine them together in a visual modeling environment, write scripts in standard scripting languages, and run the tools as commands in a command line window. This session will introduce ArcGIS users to building workflow models, creating and using scripts and deploying these models and scripts as tools.

Presented by: Travis Saladino, ESRI Technical Services Representative

2:50 p.m. – 4:15 p.m. Room D
Fundamentals and Applications of Remote Sensing

Suggested skill level of audience: Beginner

Remote sensing is the science, art, and technology of characterizing, measuring, and mapping surface or near-surface Earth features using instruments removed from the surface. This workshop will explore the physical basis for remote sensing, guidelines for selecting the appropriate sensor for a given problem, and a range of potential applications.

Presented by: Brad Rundquist, Associate Professor of Geography, University of North Dakota

2:50 p.m. – 4:15 p.m. Room E
ArcView Tips & Tricks

Suggested skill level of audience: Beginner to Intermediate

This workshop will demonstrate the newest functionality in ArcGIS 9.X (the most current version). Topics will include an overview of basic components and terminology, shortcut keys, and mobile mapping toolbars. We will also cover some of the tips and tools that will make you a proficient ArcView 9.1 user, such as, toolbar customizations, working with tables, cartography tips, projections and some editing. A manual with step-by-step instruction will be provided.

Presented by: Kendis Scharenbroich, GIS Consulting Manager Pro-West & Associates, Inc

Comfort Inn - Pool Area
Hors d'oevres & Social

4:30 p.m. – 6:00 p.m.

Come on over and socialize after a long day of taking part in the conference! Enjoy a nice selection of goodies, courtesy of the vendors whose names are listed above the food. The exhibit area will be open during the social, please be sure to thank them for making this event possible.

Wednesday, October 25

8:00 a.m. – 9:00 a.m.
Registration and check-in outside of Room C

Comfort Inn - Room F
Exhibits

9:00 a.m. – 6:00 p.m.

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Comfort Inn – Rooms C/D & E
Presentations

8:30 a.m. – 9:00 a.m. Room C/D
GIS for Everyone! ~ ArcGIS Explorer

ArcGIS Explorer is an easy-to-use application that allows users to view and explore geographic information and perform GIS tasks in a friendly way. What's even better is that ArcGIS Explorer is **free** and downloadable from the ESRI website! It's not just an exploration tool, it's a powerful way to deliver and publish ArcGIS capabilities to a whole new world of users. ArcGIS Explorer includes ready-to-use tasks and tools such as Measure & Identify, Find Address, Find Place, Find Closest, Driving Directions and more. It can also be customized to include advanced geoprocessing, spatial

analysis, and executing models. Come see a live demonstration of ArcGIS Explorer and its capabilities.

Presented by: Travis Saladino and Mark Robbins, ESRI

9:00 a.m. – 9:30 a.m. Room C/D
Leveraging Open Source to Minimize the Financial Risks Associated with the Development of Spatially-enabled Management Infrastructure

The development of an integrated spatially enabled management infrastructure is inherently costly. Unfortunately, organizations tend to focus on the costs of hardware and software, which represent a very small percentage of the overall costs associated with deploying this type of infrastructure. As a result, hardware and software costs tend to dictate the success or failure of many of these types of projects. This becomes more of an issue when long-term funding becomes a critical element to support the hardware and software. Any form of interruption in support or funding for the hardware and software places the entire management infrastructure at risk, which threatens the long-term stability of the management program and places significant development efforts at risk. Open Source solutions have evolved significantly over the past decade, and open source now provides viable options that can eliminate the financial and political risks associated with funding and maintenance of a commercial based infrastructure.

Presented by: Rod Bassler, GIS Coordinator, North Dakota State Water Commission
Chris Bader, IT Manager, North Dakota State Water Commission

9:00 a.m. – 9:30 a.m. Room E
Emergency Management Software & Community Development Utilizing Geographical Information Systems (GIS)

How many of our cities and counties are "sharing their data" to create comprehensive emergency management preparedness' plans and mitigation? We must think of alternate methods to empower our communities to develop "social capital" and cooperation. Let us review methodology and software capabilities that can encourage this sociological concept to grow within our communities. The GIS community can stimulate this growth and bring benefits to all. Emergency Management GIS software review:

HAZUS-MH: Hazards U.S. – Multi – Hazards
CAMEO: Computer-Aided Management of Emergency Operations
ALOHA: Hazards Materials Dispersion Modeling

Presented by: Donald Borgen, NDSU Emergency Management Graduate Student, NDSU Civil Adjunct Professor

9:30 a.m. – 10:15 a.m. Room C/D
Managing North Dakota's Water Resources; Building the Data Management Framework for the Future

The North Dakota State Water Commission is tasked with managing North Dakota's water resources. One of the more difficult challenges associated with this task lies in the development of a data management framework capable of addressing the complexities associated with water resource data. In order to be effective, the data management framework had to be capable of addressing storage, management, and analysis of the spatial and temporal relationships that exist

within the water resource systems. Addressing spatial and temporal relationships within the context of a traditional data management system is inherently difficult and could only be achieved through the integration of a broad range of tools. The Water Commission makes extensive use of open source solutions, which provide a unique opportunity to integrate a broad range of specialized components into a more cohesive management solution. The standards model employed by open source has made it fairly simple to chain individual applications together to address an array of functions to extend the capabilities of the legacy data management infrastructure. This has provided the Water Commission with the unique opportunity to build a data management framework capable of addressing future requirements without the need to retool or rebuild significant components of the existing infrastructure.

Presented by: Rod Bassler, GIS Coordinator, North Dakota State Water Commission
Chris Bader, IT Manager, North Dakota State Water Commission

9:30 a.m. – 10:15 a.m. Room E
Surveying and GIS: Survey Grade Data within GIS – The ArcGIS Survey Analyst

Surveying and GIS are becoming more and more reliant on each other. With urban growth into rural areas, the need for high quality GIS data as a basis for mapping efforts for a city or county GIS department is an increasing challenge. In addition, current data collection efforts may not suite future needs. Though the advances of data gathering technology have substantially improved through the use of GPS mapping grade receivers and high resolution orthophotography, much of the data collected is not utilized with a survey grade control network and many may elect to entirely recollect data later if higher precision is required. The ESRI ArcGIS Survey Analyst ArcGIS Extension bridges the different worlds of the mapping sciences. Survey quality data through the BLM Geographic Coordinate Database (GCDB) project and GPS survey grade data will be featured with a detailed look at the Survey Analyst illustrating techniques to link legacy databases to survey control, how spatial integrity is managed using the extension, and a look at the future with the new Cadastral Editor for release with ArcGIS 9.2.

Presented by: Aaron Norby, PLS N.D, S.D, TX. and Chris Carlson BLM GCDB Project Coordinator, Kadrmas, Lee & Jackson, Inc., GIS Group, Bismarck Office

10:15 a.m. – 10:30 a.m. Room F – Exhibit Area
Break

10:30 a.m. – 11:00 a.m. Room C/D
Data Maintenance Utilizing Remote Data Access and Management

An extension of the traditional contract data maintenance, Remote Data Access and Management (RDAM) pertains to providing data maintenance services by accessing geospatial data from a remote location and providing maintenance services. With advances in telecommunication and data transfer protocols, the use of RDAM is growing exponentially in the geospatial industry. This presentation will focus on the requirements to use RDAM methods and the pro's and cons of its use.

Presented by: Jaymes Pardue, Senior Account Manager, Infotech

10:30 a.m. – 11:00 a.m. Room E
Coming Soon!

Presented by: Damion Knudsen, Graduate Student, Environmental and Conservation Sciences, North Dakota State University.

11:00 a.m. – 11:30 a.m. Room C/D
The Development of a Geospatial Blowing Snow Susceptibility Index

Winter travel in the Snow Belt areas of the United States can be hazardous during times of blizzards, winter storms, and blowing snow events. For surface transportation precipitation does not have to be falling in order for travel to become hazardous. Wind alone can transport snow, from previous snow events onto the roadway, which reduces visibility and can begin to accumulate. The areas of roadway accumulation depend on the orientation of the roadway with respect to the prevailing winds during the event, the amount of snow mass present and surface roughness factors along the roadway. Identifying the surface roughness or vertical extent of the vegetation is a geospatial problem that can be accomplished with ground-based observations.

Presented by: Scott Kroeber, Research Assistant, GIS Remote Sensing Specialist, University of North Dakota

11:30 a.m. – 11:45 a.m. – Room C/D
Closing Comments

Presented by: Bob Nutsch, GIS Coordinator, North Dakota Information Technology Department

11:45 a.m. – 1:00 p.m.
Lunch – on your own

Comfort Inn - Room C, D & E
Workshops

1:00 p.m. – 5:00 p.m. Room C
National Hydrography Dataset Applications Workshop

Suggested skill level of audience: Basic knowledge of GIS

This class provides all of the basic information you need to exploit the power of the National Hydrography Dataset. The NHD was carefully designed for scientific applications and consists of many attributes and characteristics perfectly suited for geographic analysis using GIS. However, the data was designed to be simple enough for anyone to use, not just highly skilled GIS specialists. Thanks to this design, powerful applications can be developed with just one day's training. The class starts by looking at how others around the country are using the NHD. The NHD data structure is explored and applied to basic mapping techniques. The ability to navigate throughout the stream network is covered, opening up new approaches for conducting GIS. The data structure is explored in more detail revealing many new possibilities for network analysis. The important process of linking scientific data to the stream network is covered. These techniques, combined with network navigation, lead to cause and effect analysis allowing the scientist to discover how one event in the environment can impact another event. The importance of data change management, the added power of NHDPlus, and the role of ArcHydro are also covered.

Presented by: Jeff Simley, National Hydrography Dataset Partnership, U.S. Geological Survey

1:00 p.m. – 2:30 p.m. Room D
Introduction to ArcPad: Mobile GIS

Suggested skill level of audience: Beginner

ArcPad is a mobile GIS product of the ESRI Corporation that lets you take GIS out into the field on your handheld and mobile devices such as an HP IPAQ pocket PC. The program also interfaces with GPS and wireless communication. ArcPad allows you to create and edit files in the field, and

input information into streamlined forms that save time and maintain consistency. This workshop will focus on the basics of ArcPad such as exploring data, editing data in the field, capturing data from GPS, creating a QuickForm, and downloading data into ArcGIS. The workshop will consist of lectures, demonstrations and a short field exercise.

Presented by: Gregory Vandeberg, Assistant Professor of Geography, University of North Dakota

1:00 pm – 4:15 p.m. Room E
What's New in ArcGIS 9.2?

Suggested skill level of audience: All skill levels

With the release of ArcGIS 9.2, users will see significant improvements and added capabilities that focus on improved usability, stability, and performance and enhancements on all products. ArcGIS 9.2 Desktop provides improved tools and interfaces, support for sophisticated cartographic design, advanced modeling tools for analysis, and enhanced CAD Support. ESRI staff will present a detailed look at and demonstrate the new features included with ArcGIS.

Presented by: Travis Saladino, ESRI Technical Services Representative